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IC1 : G06F- 01/08
ET : A computer with interrupt controlled clock speed and its method of operation
FT : Ordinateur avec une vitesse d'horloge commandée par interruption et sa méthode de mise en oeuvre
GT : Rechner mit unterbrechungsgesteuerter Taktgeschwindigkeit und Verfahren für seinen Betrieb
PA : International Business Machines Corporation
IN : Antanaitis, Benjamin Charles, Jr.
Emerson, William Blaine, Jr.
St. John, Joseph Winfield
ND : ESPACE 90/017 FIRST 90/002
ESPACE 90/046
AB : A computer includes a main processing unit having arithmetic logic, memory address control, input/output address control, and execution control. The computer also has an operating system program which includes an interrupt handler module. A variable frequency clock oscillator is disclosed which is controlled by the operating system via the execution control unit of the main processing unit. Machine level instructions in the executing program change the clock speed whenever it is necessary to keep the computer in synchronism with one of its I/O adapters or to speed up the clock when slow speed circuits are not being utilized. Clock speed is changed by the interrupt handling module. Circuits and programs, which require longer cycle times to execute properly, are placed together on interrupt levels. For example, the machine check program requiring the slowest clock speed is assigned to interrupt level 0. I/O adapters using low-speed circuitry are assigned to interrupt levels 1, 2 and 3. High speed circuitry adapters are assigned to interrupt levels 4-7. Whenever an interrupt is generated, the machine language program serving the interrupt first changes the speed of the oscillator clock to that speed defined for the interrupt level on which the interrupt was received. When the interrupt has been serviced, the oscillator clock speed is restored to that speed of the program operating on the interrupt level which has just been interrupted.